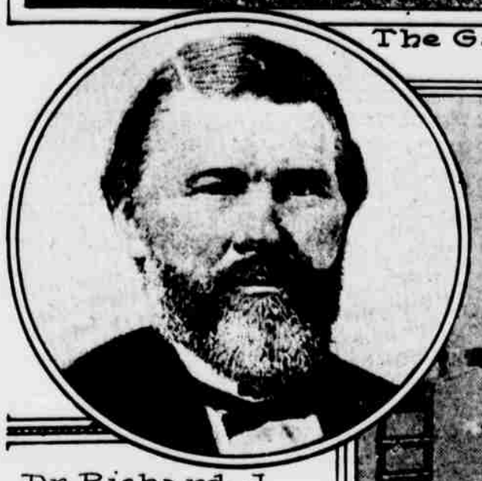
UNCLE SAM'S EYE BLIND TO BATTLE WINNING INVENTIONS

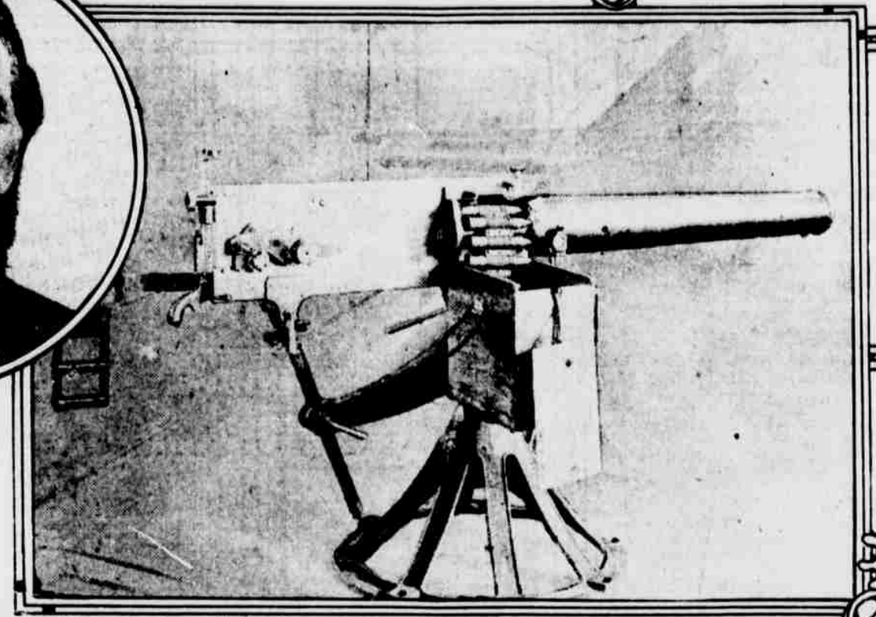
The Gathmann 18-inch Gun

The Target that foretold the fate of the Belgian forts

Col. Isaac N. Lewis



Dr Richard J Gatling



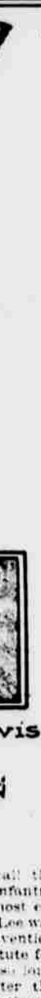
The Maxim Machine Gun we had to buy

An Aeroplane armed with a Lewis gun

Yankee Resourcefulness Responsible for Practically Every Modern Weapon and Europe Was Quick to Prize What Was Rejected Here

Government Has Often Failed to See Merit in New Instruments of War and Having Declined With Thanks Must Now Pay Double

Simon Lake



Firing the Lewis Gun from the Shoulder

AMERICAN genius is playing a big part in the grim struggle abroad. American inventiveness has more than once turned the tide of battle upon the blood stained fields of Europe. The fertile minded Yankee may yet earn the palm for doing the most to break the deadlock on the western front. And yet some of the most potent of the military instruments now in use were rejected here, and their value was recognized at last only because European governments demonstrated their worth.

This is not a new story, but a serial tale, the latest instalment of which is now appearing. In the past both the army and the navy have done little to encourage the American inventor at large. But for the genius of Ericsson and the courage of the capitalists back of him the United States might never have had the Monitor, might never have had the foundation for the great dreadnoughts of to-day. The Navy Department discouraged that invention.

Capt. John A. Howell of the United States Navy devised a remarkable torpedo, one that could run straight where all others failed. He blazed the way for gyroscopic control, and yet he was hampered at every turn and finally utterly discouraged.

Bradley Allen Fiske when only a lieutenant gave to the navy, twenty-six years ago, his electrical range finder, and had actually to battle to get it accepted. Two years later, in 1892, he made and demonstrated his telescopic sight. His suggestion was poohpoohed, but comparatively crude as his instrument was it showed how vastly better hitting could be secured.

Every one knows how hard was the way John P. Holland had to travel to win recognition for his submarine, and how much harder still Simon Lake had to fight for consideration here. He had first to win favor abroad.

What would a nation's sea borne defence amount to without dreadnoughts? What fleet would be complete without submarines? What battle craft could hope to use its guns effectively without telescopic sights and range finders? And yet the Navy Department, or a coterie within that organization, stood out vigorously against all of these creations of the inventive mind.

This happened in spite of the fact that the navy has had a broad field of vision in consequence of the nature of its duties. The army, on the other hand, has been circumscribed; its service, until within recent years, has been entirely within the continental limits of the United States, and a continuing excitement in the service has had charge of the nation's defensive needs. It has given even less encouragement than the navy to inventors. Outside help either from civilians or from officers in other arms of the army was not desired.

It is the persistence of this stand toward others that has provoked the present controversy in regard to machine guns. In this case an officer of artillery, not a civilian unfamiliar with military needs, has found his invention unwelcome in this country despite the praise it has won abroad.

"Why is this so?" the taxpayer asks. Those familiar with conditions have answered again and again: "Professional jealousy." The situation is really the outcome of an administrative system which permits the officers of the army and the navy to sit unquestioned in the judgment of their own work when the inventions of others or outsiders are concerned.

Five years ago Rear Admiral Bradley Allen Fiske described the fundamental principles underlying naval power, and asked:

"Does any one deny that the inventor is a necessity of progress? Does any one deny that the inventor must precede the engineer, that conception must precede development? Does any one deny that our electric lights, torpedoes, guns and engines were invented before they were developed; that they were conceived before they grew and waxed into maturity? Why not develop such things as soon as possible in secret and secure the military advantage accruing, instead of resisting them until all the world knows about them?"

The story of the opposite attitude is a long one. The Government through its responsible officials has refused inventions when they could be had for nothing or for a comparatively trifling sum, only to need them later and to pay dearly for them. A few instances will suffice to make this neglect of opportunity clear.

It is a matter of common knowledge that the development of side arms was revolutionized by the invention of the revolver. The repeating pistol completely upset previous military standards. It gave to its possessor an inestimable advantage over an antagonist not so equipped. But how was Samuel Colt, the inventor of the revolver, treated by the War Department when he offered his epoch making arm to the army? Was he welcomed? Was he encouraged in that memorable year of 1837?

What happened was that a board of army officers was organized and by them the revolver was examined in the light of their military experience. Then they declared that "from its complicated character, its liability to accident and other reasons this arm (Colt's revolver)" was "entirely unsuited to the general purposes of the service."

Happily Colt's financial backers were not dismayed by that official decision. They were men of practical affairs and were accustomed to looking ahead. Civilians were appreciative of the invention's merits and the American Institute awarded Colt a gold medal and elected him an honorary member of the society. Frontiersmen fighting for their lives and the Texan rangers of the period promptly bought every available revolver.

Not only that, but European Governments hastened to obtain the new pistols for their troops and finally when the American ordnance authorities could no longer stem the tide of popular criticism then Colt's revolver won recognition from the War Department.

Possibly the general public has a fair idea of what is meant by a committee or board and also has a pretty good notion of its purpose. Since the days of Samuel Colt another definition has come into being among the alert men of the army. It had its inception when a group of young officers contemptuously dubbed "the Irresponsible Syndicate of First Lieutenants" had the temerity to call to the attention of the ordnance board of the army the need of some system of fire control. It was then that a board was described as "something that is long and narrow and generally wooden."

Awed by the waste of human life in war, Dr. Richard J. Gatling in 1861 asked himself: "Why not make labor saving machinery for war? Why not give one man the power to do the work of ten or more and thus reduce exposure upon the battle front?" That was the inspiration for his machine gun. A year later the weapon took practical form, but despite its merits the ordnance board opposed its adoption. It was not until European ministries of war welcomed the gun that Gatling got substantial encouragement from this Government.

Following in the same line of invention, Hotchkiss produced his revolving cannon, a new and an admirable gun in every way, but he, too, was forced abroad and the wide awake French made it worth his while to establish himself there. Later, of course, the American ordnance experts had to acknowledge their shortsightedness and some of the weapons were purchased, but, as has uniformly been the case, at a price far higher than was originally asked by the inventor.

Every one knows the kind of reception Hiram Maxim got from the War Department, or, to be specific, the Ordnance Board of the Department. Utterly disgusted, he turned his back upon his unappreciative countrymen and sailed away to England. The British authorities were only too glad to adopt his weapon and continental rivals were not long in following suit. Established in England, Maxim turned his many sided genius to the problem of high explosives and with equal success. The British did not hesitate to acknowledge the fruits of his cunning and as a further token of national esteem bestowed upon him the dignity of knighthood. When, in the end, the United States had to buy Maxim guns it was necessary to pay dearly for the early neglect of the inventor.

In time the Colt machine gun was evolved and offered to the United States army, but there was a long and a hard row to hoe before the Ordnance Board saw light and gave it approval. Colt was able to provide a lighter and therefore a more mobile gun, but none of these weapons could be properly compared with the machine guns of the present models. The machine guns of to-day are the climax of years of experience and experimenting and the Lewis weapon is preeminent among them, according to experts.

While a few machine guns were bought by the army no one in the high places did anything to promote their use or to prepare for their employment in time of war. They were looked upon as a nuisance or something akin to one. Such was the state of affairs in the Ordnance Board of the army when 1898 dawned.

Realizing the need of action, a young officer of infantry, Second Lieut. John Henry Parker, was lucky enough to submit to the Ordnance Department the design for a carriage intended to facilitate the use of machine guns with the advanced troops in the field. The staider official experts were uniformly of the opinion that machine guns were fit only to supplement permanent defences or field fortifications. The Ordnance Board didn't deign to acknowledge the receipt of Lieut. Parker's plan. When war with Spain was declared Lieut. Parker saw his chance.

By sheer good luck, plus a wealth of undaunted persistency, Parker got four small machine guns out of storage at Tampa where they otherwise would have remained. Despite many difficulties he also got a detail of men, whom he picked and drilled with infinite patience and care. Then, overcoming endless obstacles, he got those despised and seemingly puny weapons —upon extemporized carriages of his own devising — right on the battle front and in the advance lines at Santiago. Parker's work with three of those guns at San Juan undoubtedly did much to save the day, for it was by their withering fire that the Spaniards were driven from their trenches and the way cleared for the drive of our own infantry. So, too, they effectually staggered the foe's subsequent attempt to counter.

Had the Ordnance Board had its way those weapons would never have landed on the Island of Cuba. Those guns at San Juan actually blazed the way for Germany's supremacy in this particular and made it possible for months after the war began in Europe for her to hold large forces at bay by means of a handful of men.

In the '90s Capt. Isaac Newton Lewis of the Coast Artillery realized the army shortage in the matter of range finders and being of an inventive turn of mind set about devising one. His experiments led him into the expensive field of optics, and his pay was modest in view of the age of his family. Therefore in order to carry on his work and to build a successful range finder he pledged his life insurance. With that money he perfected the instrument and then offered it to the War Department substantially gratis, for he asked only reimbursement of its outlays.

Did the Ordnance Board welcome that much needed apparatus? No. Instead the instrument was criticised and disapproved; there was no word of encouragement, no desire to recognize its merits. When war with Spain came the army needed range finders and it needed them sorely. The Ordnance Board then bought the Lewis instrument from the company that had purchased the patent rights, and the inventor netted many times what the Government was originally asked to pay for the exclusive possession of the apparatus.

Such of the public as have followed military developments will recall the Lee-Metford rifle, a type of infantry arm which was for years the most esteemed shoulder piece abroad. Lee was an American. He offered his invention to the United States as a substitute for the old Springfield rifle, which so long had a vogue in the army after the civil war. Lee produced a distinctly superior arm, but he failed to interest the army experts. So he took himself abroad and was welcomed by the British authorities. Every one knows the odds against our soldiers during the war with Spain because of the inferiority of the American army rifle.

About seventeen years ago much was heard of the Brown segmental wirewound gun. A five inch weapon of that type was built by the people back of it and then submitted for test to the Ordnance Board. There is no need to elaborate upon the fate of that invention. At the time the Ordnance Board had a pet of its own which it was laboriously developing at the nation's expense, and there was no disposition to welcome an outside invention.

The Brown gun actually gave the remarkable muzzle velocity of 3,200 feet a second, a velocity higher than that of hundred guns in service to-day, and was the first to be tested in this country with three hundred rounds of smokeless powder. The trial board reported, however, adversely, and one of the members of that tribunal was the ordnance officer responsible for the rival weapon.

Dr. Tuttle, an American civilian, gave to the world that powerful explosive which he called thorite. Thorite is superior in many ways to gun cotton, and its invention came at a time when alert military men were casting about for a better and a more effective high explosive. Dr. Tuttle sought recognition of the War Department. His demonstrations were a revelation, but he got nothing except discouragement, thanks to the Ordnance Department. It was the War Department's treatment of Dr. Tuttle that provoked Gen. Nelson A. Miles to remark before a Congressional committee:

"The experiments were entirely satisfactory, but of course he has met the fate that other inventors have. Many of our ablest inventors, like Hiram Maxim, have gone to Europe. Gatling had a similar experience, and so had Lee and Hotchkiss."

High explosive shells have radically altered the present methods of warfare, especially those of large calibre. It was with great projectiles of this sort that the Kaiser's forces battered down the Belgian and the French armored forts. The idea of that form of attack originated in America and every effort was made to give this nation the initial benefit. But the Ordnance Board of the United States army stood squarely across the path of progress. The inventor in question is Louis Gathmann.

About sixteen years ago Gathmann offered the War Department a gun capable of firing a shell, also his own invention, loaded with a charge of high explosive. It was, as is the rule, referred to the Ordnance Board. His projectile was, in effect, an aerial torpedo. The army ordnance experts promptly condemned the whole scheme offhand. But Gathmann had strong friends, and Mark Hanna, then in the United States Senate, was one of them. The latter saw to it that an appropriation was made for the trial of the gun and of the shell.

The test took place. Down at Sandy Hook, despite difficulties that hampered the demonstration of the Gathmann inventions, the projectiles did work which was nothing short of astonishing. The trial disclosed a revolutionary form of attack peculiarly suited to our coastal requirements for the repelling of heavily armored ships. Nevertheless the performances were studiously given an official black eye and guardedly discredited, while the doings of a rival shell—developed by an ordnance officer who was a member of the board—were praised.

Unlike the armor piercing shell, with its relatively small bursting charge, Gathmann's projectile was designed to exercise a wrecking effect by reason of a stunning exterior explosion, the impact of an 18 inch shell being supplemented by the simultaneous detonation of a great quantity of gun cotton. As a result of the tests his projectile drove a plate of heavy steel many feet rearward and crushed it and crumpled up the supporting steel plates and a backing of timbers and sand which more than equalled the strength of any ship either then or now in existence.

Gathmann's object was to displace great masses of a foe's defensive armor and thus to open a passage for a flood of inundating water, or else to shake a ship by the violence of the attack so that some of her vital mechanisms would be profoundly disarranged. It is a matter of record now that just this, rather than actual perforation of the armor, has been largely responsible for the destruction and grave injury of many of the ships engaged in the larger of the naval battles.

It is a matter of military history that the ordnance department of the army filled shells for the Porto Rican campaign in 1898 with smokeless powder. Capt. I. N. Lewis was one of the witnesses before a Congressional committee that investigated this and other matters, and he had to put the blame where it belonged. He showed that this use of the new propellant was not an accident, but the result of deliberate orders from the ordnance department. It was the same department too that opposed the use of fixed ammunition for field guns on the score that the expended brass cartridge cases might cut the hoofs of the horses. Without these cases rapid fire would have been impossible.

Gen. Nelson A. Miles detailed Capt. Lewis in 1900 to go to Europe for the purpose of studying the condition of military material there. When he returned Capt. Lewis made a report that brought to light how the United States Army lagged behind the armies abroad, and the ordnance department especially suffered severely by comparison. Later Capt. Lewis was sent to a post in the furthest Northwest. Some of his friends believed that his virtual exile was brought about by the ordnance department. It was there in that isolation that Major Lewis found time to work out the design for a machine gun, the first model of the present weapon.

In time—in fact as far back as 1909—the Lewis gun was called to the attention of the War Department and its inventor offered it to the Government gratis. Lewis had become, however, preeminently persona non grata to the ordnance department because, with Gen. Miles, he had not hesitated to expose the mechanical and military weaknesses of the disappearing gun carriage. Whatever the reason, from the very start Lewis and his weapon were opposed by the ordnance department. Yet the value of the gun has since been demonstrated abroad.

The Royal Flying Corps of the British army is, by reason of the severest of practical experience, purposely and exclusively equipped with Lewis guns. It was with one of these little sprtifires that Flight Lieut. Robinson recently brought down, single handed, one of the Zeppelins near London. The British appreciate the advantage of having the use of these guns and only with reluctance have they allowed any of the weapons to go to their allies. They know how much these machine guns mean to the security and effective service of their own fighting men.

A curious contrast is supplied by the history of the gun in the United States. At the time of the joint military maneuvres held in Connecticut in the fall of 1912, the United States Signal Corps boasted two aeroplanes and it was Gen. Leonard Wood's desire—he was then Chief of Staff—to make those maneuvres as instructive and as up to date as possible. Knowing of the Lewis gun, he expressed a wish to have two of the weapons for field service aloft.

Lieut.-Col. Lewis, then on furlough and living in New York city, had had several of the weapons built at his own expense and he immediately went to Washington with two of them and offered them gratis for the manoeuvres. He asked that the War Department furnish the necessary ammunition. This General Wood promptly volunteered to do. Now see what followed.

An order for the necessary ammunition was issued and approved by the chief of staff. The chief of ordnance, learning that the Lewis gun was thus to be singled out for distinction, interposed and through his action the ammunition was not supplied. Therefore the Lewis gun took no part in the manœuvres, although it had previously, at College Park, Md., been carried aloft by one of the army aviators, fired with success from the air and highly praised by the officer in question, Capt. Chandler, U. S. A. America's chance to make a record in military progress was thus nipped in the bud.

It is a fact that the Bureau of Ordnance had at that time the Benet-Mercie machine gun—the weapon that failed at Columbus, N. M., at the time of the Villa raid. But the Benet-Mercie gun was in no wise suited to aerial service or susceptible of efficient handling from an aeroplane.

As has been demonstrated down on the Mexican border, the Benet-Mercie gun is an uncertain quantity, especially after nightfall, light being necessary in order to enable the operator to see how to slide the cartridge clips into a notch needful to efficient functioning. Now the faintest glimmer on the firing line is an invitation to an enemy sharpshooter. It is for that reason that the glow of a pipe or the burning tip of a cigar or cigarette is strictly interdicted. And yet the Ordnance Bureau has issued a flat order prescribing that operators of Benet-Mercie guns shall be provided with pocket flash lamps so that they may see to load their weapons.

Congressional hearings are a fruitful source of information and also an index of how information can be withheld. Notwithstanding the established fact that the War Department was advised of the Lewis gun seven years ago, not a word about the invention can be found in the testimony of Gen. Crozier of the ordnance board until January of the current year. He has been as silent on the matter of the Lewis gun in the years gone, when he appeared before the House Committee on Military Affairs and discussed the question of machine guns, although that weapon never existed.

However, on January 26 of this year he admitted that the Lewis gun was a fact when asked a direct question by the chairman of the committee. When the further query was put, "Is that an approved gun?" Gen. Crozier answered: "It is in use in certain European armies." A moment later he said: "I am not certain what the experience has been with it." As will be seen presently, it is surprising that Gen. Crozier didn't know.

The Benet-Mercie gun has been costing the nation $1,200 apiece, but according to his testimony before the Military Committee of the House of Representatives on April 4 last the so-called new Vickers machine gun is to take its place. The same company in Hartford that has enjoyed the exclusive privilege of making Benet-Mercie guns for the United States will now turn out, also exclusively, the Vickers for the army.

The Vickers gun is substantially the Vickers machine gun of long standing modified by the substitution of a lighter water jacket, thereby saving about ten pounds in weight. Orders have been given for a large number of these weapons, and each weapon, complete, is to cost $3,000. This sum includes a bonus or royalty to the company concerned. In passing it may be of interest to remark that the Lewis gun complete is sold for $750.

The Vickers gun in its present form carries thirty-seven pounds and its supporting tripod represents thirty-five pounds more, on the other hand the heavier model of the Lewis gun thus the same, or only twenty-six pounds, while the lighter model, adapted to aeroplane service, exactly and the work of motorcyclists, weighs a pound less, and either of them in five minutes can fire 2,000 rounds of ammunition.

When rushed by an enemy, the relatively ponderous Vickers gun has often to be abandoned, while the Lewis gun, because of its lightness and mobility, can be saved and carried where it can be quickly and effectively brought into service again. This is a matter of no mean military importance. Besides, the Vickers gun needs water to keep it cool enough for sustained action, and water is not always to be had upon some theatres of war. The Lewis gun is air cooled, therefore, fit for good work anywhere.

In his testimony in the early part of the year Gen. Crozier said: "Machine guns have their peculiarities, and they require more skilful men to operate them than the rifle, the shoulder rifle. They are little engines. They are a great deal like the internal combustion engine of an automobile, in that they require a certain amount of mechanical skill to keep them running." The same authority said that the new Vickers weapons are more complicated than the Benet-Mercie that balked when it had fight failed.

Again, Gen. Crozier told the military committee, when discussing the appropriations for 1917: "The gun we are going to manufacture (the Vickers) is largely used in the European war. It is being used to the greatest extent to which they can get them by the British army." It will be recalled that a short while before the chief of ordnance, speaking of the Lewis gun, said: "I am not certain what the experience has been with it." And yet his information seems to have been abundant in the case of the Vickers.

The fact is the British Government has willingly let its allies have all the Vickers guns that were available without restraint, while the Lewis weapons were granted grudgingly. More than this, the rumor of Lewis guns destroyed by the British troops each month is officially cut at least five times as large as that of the rival weapon.

The English have about 15,000 Lewis guns with the troops engaged in the great drive on the western front and no fewer than a thousand of these weapons have been doing service at Verdun. As fast as possible the British are raising their quota of Lewis guns, and their aim is shortly to have something like thirty-five of them with every thousand fighting men.

The concern in England manufacturing the Lewis gun has spent more that three million dollars in amplifying its plant so that it might meet the Government's requirements, and to-day in the three great new buildings dedicated to its production there are employed 6,000 workers.

Congress has appropriated $12,000,000 for machine guns. The importance of adopting the right kind of machine gun for the army is apparent.